

November 1, 2007

Rick Libra, BWRVIP Chairman
DTE Energy
Fermi Nuclear Plant (M/S 280 OBA)
6400 N. Dixie Highway
Newport, MI 48166-9726

SUBJECT: NUCLEAR REGULATORY COMMISSION (NRC) APPROVAL LETTER FOR BWRVIP-96-A, "BWR VESSEL AND INTERNALS PROJECT, SAMPLING AND ANALYSIS GUIDELINES FOR DETERMINING THE HELIUM CONTENT OF REACTOR INTERNALS"

Dear Mr. Libra:

By letter dated February 8, 2007, the Boiling Water Reactor Vessel and Internals Project (BWRVIP) submitted Proprietary Report BWRVIP-96-A, "Sampling and Analysis Guidelines for Determining the Helium Content of Reactor Internals," for NRC staff review. The BWRVIP also submitted the non-proprietary version of this report by letter dated February 21, 2007.

The BWRVIP-96-A report was submitted as a means of exchanging information with the staff for the purpose of supporting weld repairs of irradiated reactor vessel internal components. The BWRVIP-96-A report provides guidelines that describe the acceptable methods for sample removal from irradiated reactor vessel internal components and the associated analysis of these samples to measure helium content for weldability determinations.

The BWRVIP-96-A report presents a compilation of information from the BWRVIP-96 report and the NRC staff's final safety evaluation (SE) dated February 25, 2005, which includes the BWRVIP's associated responses to NRC staff requests for additional information.

The NRC staff has reviewed the information in the BWRVIP-96-A report and has found that the report accurately incorporates all of the relevant information which was submitted by the BWRVIP in the documents noted above to support NRC staff approval of the report. The staff found that minimal revisions were made to the BWRVIP-96 report in the production of the BWRVIP-96-A report. These revisions are discussed in detail below.

The first revision was that the BWRVIP included text in Section 3.3 and added Appendices B and C of the BWRVIP-96 report to incorporate the BWRVIP response to the staff's RAI as identified in the staff's SE, dated February 25, 2005, on the BWRVIP-96 report. The staff requested that the BWRVIP clarify the spread of the boron content found in the samples taken from one plant documented in Appendix A. The BWRVIP-96-A report clarifies that the boron content spread is attributed to a combination of measurement uncertainty and boron inhomogeneity. Measurement uncertainties and/or boron inhomogeneity of a few percent are inconsequential in the context of determining weldability. In addition, the BWRVIP included

sample measurement results from two additional plants in Appendices B and C to support the reproducibility of the helium and boron measurement technique. The staff agrees that the additional measurements taken from the two plants shows a nominal measurement error of less than one percent to be acceptable in determining the weldability of irradiated reactor vessel components.

The second revision was that the BWRVIP added "Implementation Requirements" to Section 1 of the BWRVIP-96 report. This section states that this report is provided for information only, and that the implementation requirements of Nuclear Energy Institute Guideline 03-08 (NEI 03-08), "Guideline for the Management of Materials Issues" are not applicable. The staff finds this revision acceptable in the context that the guidelines of this report are only used to provide licensees with a better understanding of the scope of the process, a description of typical tooling, sample handling requirements, and an example of a safety analysis to demonstrate that the effects of removing a sample from a reactor vessel component do not affect the fatigue life of the component or violate the American Society of Mechanical Engineers (ASME) Code, Section III requirements. Using this or similar techniques to determine the helium and boron content of irradiated components will be used as input data for other reports (i.e., BWRVIP-97, "Guidelines for Performing Weld Repairs to Irradiated BWR Internals") if the licensee chooses to perform weld repairs in accordance with the applicable BWRVIP reports. It should be noted that each licensee is required to determine whether their sampling technique on each specific component will still meet ASME Code, Section III requirements.

Based on the discussion above, the staff has determined that the BWRVIP-96-A report is acceptable. Please contact John Honcharik of my staff at (301) 415-1157 if you have any further questions regarding this subject.

Sincerely,

/RA/

William H. Bateman, Deputy Director
Division of Component Integrity
Office of Nuclear Reactor Regulation

cc: BWRVIP Service List

sample measurement results from two additional plants in Appendices B and C to support the reproducibility of the helium and boron measurement technique. The staff agrees that the additional measurements taken from the two plants shows a nominal measurement error of less than one percent to be acceptable in determining the weldability of irradiated reactor vessel components.

The second revision was that the BWRVIP added "Implementation Requirements" to Section 1 of the BWRVIP-96 report. This section states that this report is provided for information only, and that the implementation requirements of Nuclear Energy Institute Guideline 03-08 (NEI 03-08), "Guideline for the Management of Materials Issues" are not applicable. The staff finds this revision acceptable in the context that the guidelines of this report are only used to provide licensees with a better understanding of the scope of the process, a description of typical tooling, sample handling requirements, and an example of a safety analysis to demonstrate that the effects of removing a sample from a reactor vessel component do not affect the fatigue life of the component or violate the American Society of Mechanical Engineers (ASME) Code, Section III requirements. Using this or similar techniques to determine the helium and boron content of irradiated components will be used as input data for other reports (i.e., BWRVIP-97, "Guidelines for Performing Weld Repairs to Irradiated BWR Internals") if the licensee chooses to perform weld repairs in accordance with the applicable BWRVIP reports. It should be noted that each licensee is required to determine whether their sampling technique on each specific component will still meet ASME Code, Section III requirements.

Based on the discussion above, the staff has determined that the BWRVIP-96-A report is acceptable. Please contact John Honcharik of my staff at (301) 415-1157 if you have any further questions regarding this subject.

Sincerely,

/RA/

William H. Bateman, Deputy Director
Division of Component Integrity
Office of Nuclear Reactor Regulation

cc: BWRVIP Service List

DISTRIBUTION

Public DCI RF PPatnaik GCarpenter JWhite, RI GHopper, RII
DHills, RIII JClark, RIV

ADAMS ACCESSION NO.: ML073050277

OFFICE	DCI/CVIB	DCI/CVIB	DCI/D
NAME	JHoncharik	MMitchell	WBateman
DATE	10/19/2007	10/19/2007	11/1/2007

OFFICIAL RECORD COPY

cc:

Randy Stark, EPRI BWRVIP
Integration Manager
Raj Pathania, EPRI BWRVIP
Mitigation Manager
Ken Wolfe, EPRI BWRVIP
Repair Manager
Larry Steinert, EPRI BWRVIP
Electric Power Research Institute
3420 Hillview Ave.
Palo Alto, CA 94303

Paul J. Davison
BWRVIP Executive Oversight Committee
PSEG Nuclear, LLC
Salem/Hope Creek Nuclear Station
11 Yubas Ave.
Burlington, NJ 08016

Bob Geier, Technical Chairman
BWRVIP Assessment Committee
Exelon Corporation
Cornerstone II at Cantera
4300 Winfield Rd.
Warrenville, IL 60555

Denver Atwood, Technical Chairman
BWRVIP Repair Focus Group
Southern Nuclear Operating Co.
Post Office Box 1295
40 Inverness Center Parkway
(M/S B031)
Birmingham, AL 35242-4809

Jeff Goldstein, Technical Chairman
BWRVIP Mitigation Committee
Entergy Nuclear NE
440 Hamilton Ave. (M/S K-WPO-11c)
White Plains, NY 10601

Charles J. Wirtz, Chairman
Technical Chairman BWRVIP Integration Committee
FirstEnergy Corp.
Perry Nuclear Power Plant
(M/S A250)
10 Center Road
Perry, OH 44081

Amir Shahkarami, Executive Chairman
BWRVIP Integration Committee
Exelon Corporation
Cornerstone II at Cantera
4300 Winfield Rd.
Warrenville, IL 60555-4012

Joe Donahue
BWRVIP Executive Oversight Committee
V. P., Nuclear Engineering & Services
Progress Energy, Inc.
410 S. Wilmington St. (M/S PEB6)
Raleigh, NC 27601-1849

Richard Anderson, Executive Chairman
BWRVIP Assessment Committee
Vice President, Nuclear
FirstEnergy Service Co.
Perry Nuclear Power Plant (M/S A-PY-290)
10 Center Road
Perry, OH 44081

Robert Carter, EPRI BWRVIP
Assessment Manager
Jeff Landrum, EPRI BWRVIP
Inspection Manager
EPRI NDE Center
P.O. Box 217097
1300 W. T. Harris Blvd.
Charlotte, NC 28221

Dennis Madison
BWRVIP Executive Oversight Committee
Site Vice President
Southern Nuclear Operating Co.
Edwin I. Hatch Nuclear Plant
US Hwy 1 N
Baxley, GA 31515-2010